The "Sense of Being Stared At" Does Not Depend On Known Sensory Clues

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1. SIMPLE EXPERIMENTS SHOW THAT PEOPLE CAN TELL WHEN THEY ARE BEING STARED AT FROM BEHIND

Many people have had the experience of turning round with the feeling that someone is looking at them from behind, to find that this is in fact the case. Surveys show that between 70 and 97% of the population in Europe and North America have had personal experience of this phenomenon (Braud, Shafer and Andrews [1990]; Sheldrake [1994]; Cottrell, Winer and Smith [1996]).

I have developed a simple experimental procedure to test whether people really can tell when they are being looked at from behind (Sheldrake [1994], [1998], [1999]). Participants work in pairs, with the looker sitting behind the subject. In a randomized series of trials, the looker either looks at the back of the subject's neck, or looks away and thinks of something else.

The results are repeatable, consistent and positive. More than 15,000 trials have already been conducted, involving more than 700 subjects (Sheldrake [1999]) Overall, there was an extremely significant positive effect ($p< 1x10^{-15}$), indicating that people really can tell when they are being looked at from behind.

The data revealed a characteristic pattern whereby the scores in the 'looking' trials were very significantly above the chance level, whereas in the control 'not-looking' trials the scores were not significantly different from chance (Sheldrake [1999]).

This pattern of results makes sense if the sense of being stared at is a real phenomenon. It would be expected to work when people were actually being stared at, as they were in the looking trials. By contrast, in the control trials when they were not being looked at, subjects were being asked to try and detect the *absence* of an effect, which has no parallel in real-life situations; and under these conditions the results were close to chance levels. They were just guessing.

If subjects were cheating or receiving subtle sensory cues then they would have been expected to obtain positive scores in both the looking *and* the not-looking trials. But this is not what happened. The pattern of results does not support the idea that they depended on cheating or subtle sensory clues (Sheldrake [1998, 1999]).

However, in the first sets of experiments, the subjects were not wearing blindfolds and were given feedback after each trial as to whether their guess was right or wrong. So the possibility remained open that some of them could have been peeping or learning from the feedback how to associate subtle cues with the looking trials, even though it is difficult to see how this possibility could be compatible with the pattern of results. In subsequent experiments I have found this same characteristic pattern even when subjects were blindfolded and deprived of feedback (Sheldrake [2000]), showing that the effect does not depend on visual clues, nor on feedback.

Nevertheless, when the lookers and subjects are in the same room, it is difficult to eliminate the possibility that the effect depends on subtle auditory or even olfactory clues. In order to test these possibilities, I have carried out experiments, described in this paper, in which the lookers and subjects were separated by closed windows, effectively eliminating any possible role of smells or sounds. In these experiments the subjects were also blindfolded and deprived of feedback. I also describe the results of independent tests carried out at my request in Canada, Germany and the United States. back to the top

2. SUBJECTS ARE LOOKED AT THROUGH WINDOWS

Experiments in London : My experiments were carried out between March and June, 1997 at University College School (UCS) Junior Branch, a boys' school in Hampstead, London and at New End School, a primary school for both boys and girls, also in Hampstead. Each experiment took place with a different class: at UCS in the second form (age 8-9) or in the third form (age 9-10), and at New End School with class 4 (age 8-9). The experiments were supervised by myself and the class teachers: Mark Albibi, Mark Lall Chopra, Heidi Gregory, Yvonne Gregory at UCS , and Lynn Gavin at New End. Before the experiment began, I gave a brief introductory talk explaining and demonstrating the procedure. I also carried out an experiment at UCS during the lunch break with volunteers, who were boys from forms 2 and 3 who had already been tested with the rest of their class.

As in my previous experiments on the sense of being stared at (Sheldrake [1999]), the children worked in pairs, one (the subject) sitting with his back towards the other (the looker). But rather than being in the same room, the subjects and lookers were separated by closed windows. The lookers were inside the school laboratory or in a classroom, while the subjects sat in a row on chairs outdoors, in the playground, with their backs to the windows. The lookers were arranged in a row in the same order as their partners, so they could look straight out of the window at them. In most experiments the distance between lookers and subjects was 3-5 metres, and the lookers were looking out of ground-floor windows, but in one case (class 2C at UCS) the lookers were in a first-floor classroom and the subjects were 100 metres away, at the other side of playground. In all cases, the subjects wore blindfolds, kindly supplied by Virgin Atlantic Airways, of the type widely used by air passengers in order to sleep on planes.

In a set of 20 trials, in a random sequence, the looker either looked at the back of the subject or looked away, and was instructed to think of something else. The random sequence was set out on previously prepared instruction sheets, with 24 different random sequences of looking and not-looking trials, compiled on the basis of standard random number tables. These sheets were given to the lookers only after the subject was in place and unable to see the sheet. Subjects were given score sheets, with a list of numbers from 1 to 20, one for each trial, and a space in which they entered their guess for each trial: if they guessed that they were being looked at they put a tick, and if they guessed they were not being looked at, they put a cross. Before the test began, both lookers and subjects were asked to write their names and the names of their partners on their sheets.

I myself was indoors with the lookers, and told them which trial was about to begin, so they could consult their instruction sheets and see whether or not they were to look in this trial. Each looker had a different instruction sheet with a different randomization. When they were ready, either looking at their partners or looking away, I said "Start", and pressed a button which rang an electric chime in the playground, indicating to the subjects that the trial was beginning. At the end of the10-second trial period, the subjects were told by the teacher supervising them in the playground to write down their guess. To do this they had to raise their blindfold, replacing it when they had written down their tick or cross. When all the subjects were ready, with their blindfolds in place, for the next trial, the teacher gave me a signal, and I instructed the lookers to get ready for the next trial. (A slightly different procedure was used with classes 3A and 3Q at UCS, in that beside each subject sat a scorer, who also had his back to the window. The subjects told their scorers their guesses, and the scorers recorded these guesses on the score sheets.)

In these experiments the subjects received no feedback about whether their guesses were right or wrong during the course of the session. Nor did the lookers know what guesses the subjects had made.

At the end of the session, when all 20 trials were completed, the lookers and subjects gave their sheets to me, and I stapled them together in pairs, so that each subject's guesses could be comparted with the looker's instructions, to see how many guesses were right or wrong. The subject and looker then changed roles, and the procedure was repeated.

Experiments in other countries : After completing this series of experiments in London, in order to find out if the results could be replicated independently, and I asked three schoolteachers in other countries to carry out similar tests in which the lookers and subjects were separated by windows. All three teachers had already carried out staring experiments with the lookers and subjects in the same room, and were familiar with this experimental method. The details of these experiments were as follows:

1. Laura Beatty, a teacher in cccccc, Connecticut, USA, carried out this experiment with her fourth grade class (aged 8-9) in cccccc School. yyyyy, in November 1997. The lookers and subjects were separated by a glass partition wall. Ms Beatty gave the signal for the beginning of each trial by ..... The subjects did not wear blindfolds, but their eyes were closed during the trial and they had their backs to the lookers so they could not see them.

2. Helmut Lasarcyk, a teacher in the Stormarnschule, Ahrensburg, Germany, did the experiment in June 1997 with 9 pupils from grade 12 (aged 18). The subjects were outdoors, separated by a window from the lookers in a room on the ground floor. They did not wear blindfolds. The teacher stood in a doorway overlooking both sides and gave verbal signals for the beginning of each trial.

3. Greg Wisnicki, a teacher at Sinclair Secondary School, Port Hope, Ontario, Canada, carried out his tests between September 1997 and April 1998 with pupils aged 14-18, who volunteered to participate in the context of a directed studies programme. The trials took place in the school chemistry laboratory, which was adjacent to a preparation room with a two-sided chemical fume hood in between. The subjects were looked at through the fume hood, with the plexiglass shields raised. Thus in this experimental set-up they were not looked at through windows, but possible olfactory and auditory clues were reduced or eliminated in other ways, namely by switching on the fume hood extraction fan, thus removing possible odours that could have travelled from lookers to subjects, and also providing background noise that reduced the possibility of auditory clues. In addition the subjects wore industrial sound eliminators, and they were also blindfolded. They sat with their backs to the starers, 2.5 metres away. One subject at a time was tested, and was looked at by two starers, who were given a freshly generated set of instructions that indicated whether they should look or not look at the subject in a series of 10 trials. These random sequences were determined by a random number generator on a calculator. On a given day, odd numbers were taken to mean staring and even numbers not staring, and on the subsequent day the meaning of odd and even numbers was reversed.

The lookers and subjects were signalled at the beginning of each trial by a signaller, who was out of sight. The signal to the lookers was seeing a card with the number of the trial on it; the signal to the subject was the activation of a small electric motor held in the left hand. In looking trials the lookers looed at the subject through the fume hood; in the not looking trials they looked elsewhere. At the end of each 10-second trial period, the subject indicated his guess by moving a toggle switch forward or backward For the first 50 subjects, moving the toggle switch foward meant they guessed they were being looked at, and backward not looked at. For the next 50 subjects these meanings were reversed; and for the last 23 subjects they were reversed again. When the toggle switch was moved forwards a red light flashed and when backwards a green light flashed, and these guesses were recorded by a recorder who was out of sight of the lookers. Thus the lookers did not know what the subject's guesses were, nor whether they were right or wrong, and the recorder did not know whether the subjects had been looking or not. The results from each session were later collated with the instructions to the starers, and the data tabulated.

Analysis of the data :The numbers of right and wrong guesses from each set of trials carried out by each looker-subject pair were tabulated in three columns; "Looking", "Not looking" and "Total", enabling the total number of right and wrong guesses in each column to be obtained.

For each set of trials, in each column, the data were also scored as follows:

+ if the subject made more right than wrong guesses

- if the subject made more wrong than right guesses

= if the number of right and wrong guesses was the same.

Statistical analysis was carried out in three ways. First, the chi-squared test was used to compare the total numbers of right and wrong guesses in each column. The null hypothesis was that the numbers of right and wrong guesses would be the same.

Second, the chi-squared test was used to compare the total numbers of + and - scores. The = scores were disregarded. The null hypothesis was that by chance the number of + and - scores would be equal. I am endebted to Professor Nicholas Humphrey for suggesting this method of analysis.

Third, the proportion of right guesses by each subject was compared with the chance level of 50% using the the paired-sample t-test. The null hypothesis was that the proportion of right guesses would be 50%. I am grateful to Professor Patrick Bateson, F.R.S. for suggesting this method.

For the comparison of two sets of scores (for example the scores with and without blindfolds) 2 x 2 contingency tables were used (Campbell [1989]), with the null hypothesis that the proportions of right and wrong guesses in both sets were equal. back to the top

3. SUBJECTS GUESS BETTER WHEN LOOKED AT THAN IN CONTROL TRIALS

The subjects made more correct guesses when they were being looked at than when they were not both in my own experiments in London schools (Table 1) and in the tests in other countries (Table 2). Overall, the percentage of correct guesses was 55.2% in the looking trials and 50.8% in the control trials. Both in London and in other parts of the world the scores in the looking trials were very significantly above chance levels, while in the not looking trials they were not significantly different from the chance level of 50% (Tables 1 and 2). Overall, combining the results of looking and not-looking trials, there were 2544 correct guesses as opposed to 2254 incorrect guesses (53.0% correct), and this difference was very significant staitistically ($p<0.00003$).

Table 1
Staring through windows in London schools

Above: numbers of right and wrong guesses (percentage of right guesses shown in parentheses). Below: total numbers of subjects with more right than wrong guesses (+), more wrong then right guesses (-) or equal numbers of right and wrong guesses (=).

Class	Looking		Not looking		Totals	
	right	*wrong*	*right*	*wrong*	*right*	*wrong*
2C	156	139	156	149	312	288
	14+	**6-** **10=**	**15+**	**11-** **4=**	**15+**	**10-** **5=**
2HG	106	94	101	99	207	193
	11+	**5-** **4=**	**9+**	**8-** **3=**	**9+**	**8-** **3=**
2YG	143	122	138	137	281	259
	15+	**9-** **3=**	**13+**	**12-** **2=**	**12+**	**8-** **7=**
3A	112	87	109	92	221	179
	13+	**5-** **2=**	**12+**	**5-** **3=**	**12+**	**4-** **4=**
3Q	97	82	90	91	187	173
	12+	**5-** **1=**	**10+**	**7-** **1=**	**10+**	**6-** **2=**
4NE	153	127	139	141	292	268
	14+	**8-** **6=**	**11+**	**8-** **9=**	**14+**	**9-** **5=**
Volunteers	65	55	66	54	131	109
	5+	**3-** **4=**	**6+**	**2-** **4=**	**5+**	**2-** **5=**
TOTALS	832	706	799	763	1631	1469
	(54.1%)		(51.1%)		(52.6%)	
	84+	**41-** **30=**	**76+**	**53-** **26=**	**77+**	**47-** **31=**
Statistical significance of difference right and wrong guesses						
chi-squared =	10.32		0.82		8.46	
p <	0.002		NS		0.004	
Statistical significance of difference between + and – scores						
chi-squared =	14.79		4.10		7.26	
p <	0.0001		0.05		0.007	
Comparison by paired-sample t test of % right with 50% subject by subject						
t = (df 147)	4.033		0.681		2.142	
p <	0.0001		NS		0.02	

Table 2
Staring experiments in schools in Canada, Germany and USA

Above: numbers of right and wrong guesses (percentage of right guesses shown in parentheses). Below: total numbers of subjects with more right than wrong guesses (+), more wrong then right guesses (–) or equal numbers of right and wrong guesses (=).

Experimenter	Looking	Not looking	Totals
	right wrong	*right wrong*	*right wrong*
Laura Beatty	137 83	102 118	239 201
USA	(62.3%)	(46.4%)	(54.3%)
	15+ 4- 3=	7+ 11- 4=	12+ 8- 2=
Helmut Lasarcyk	51 39	48 42	99 81
Germany	(56.7%)	(53.3%)	(55.0%)
	7+ 2- 0=	4+ 2- 3=	7+ 2- 0=
Greg Wisnicki	290 235	285 270	575 505
Canada	(55.2%)	(51.4%)	(53.2%)
	54+ 35- 19=	47+ 44- 17=	54+ 37- 17=
TOTALS	478 357	435 430	913 787
	(57.2%)	(50.3%)	(53.7%)
	76+ 41- 22=	58+ 57- 24=	73+ 47- 19=
Statistical significance of difference between total numbers of right and wrong guesses by chi-squared test			
chi squared =	17.53	0.03	9.34
p <	0.00003	NS	0.0002
Statistical significance of difference between + and – scores by chi- squared test			
chi squared=	10.47	0.01	5.63
p <	0.002	NS	0.02
Comparison by paired-sample t test of % right with 50%, subject by subject			
t = (df 138)	3.628	0.227	2.379
p <	0.0004	NS	0.02

A very similar pattern was apparent when the data were analysed in an alternative way whereby each subject was scored positive (+) if more guesses were right than wrong and negative (-) if more guesses were wrong than right (Tables 1 and 2). Combining the data from Tables 1 and 2, in the looking trials the scores were 160+ 82- , an extremely significant difference ($p<1x10^{-6}$), while in the not-looking trials the scores showed only a small excess of positive over negative scores (134+ 110-) that was not significant statistically (Figure 1). For the looking and not-looking trials combined the excess of positive over negative scores (150+ 94-) was significant at the $p<0.0004$ level.

The data were also analyzed by means of a paired-sample t test subject by subject. By this method too the excess of positive over negative guesses was very significant in the looking trials, not significant in the not-looking trials, and significant for the looking and not-looking trials combined (Tables 1 and 2).

An inspection of the detailed data from the different classes in London (Table 1) and from the schools in other parts of the world (Table 2) shows that this general pattern was consistent and repeatable. In all cases there was an overall excess of positive over negative scores. back to the top

4. FACTORS AFFECTING SUBJECTS' SCORES

These experiments show that people really can tell when they are being stared at from behind, even when they are looked at through windows. They confirm the results of previous experiments carried out in the same room, with very significantly more positive than negative scores in the looking trials, and scores close to chance levels in the not-looking trials (Sheldrake [1998, 1999]).

The experiments reported in this paper (Table 1) impose even more rigorous safeguards against possible artefacts in that the subjects were blindfolded *and* given no feedback *and* separated from the lookers by closed windows which effectively eliminated the possibility of auditory and olfactory clues. In the Canadian experiments these possibilities were reduced yet further by the extraction of any possible smells through the fume cupboard, by the subjects wearing industrial sound eliminators, by the background noise of the extractor fan, but still the results showed the usual pattern with positive scores in the looking trials and scores close to chance levels in the not-looking trials (Table 2).

The main difference between the results of the experiments in the same room from those that involved looking through windows is that the positive scores were generally higher in the looking trials in the same room: 59% correct (Sheldrake [1999]) as opposed to 55% through windows. The difference in scores was statistically significant ($p<0.05$). At first sight this results suggests that looking through windows weakened the ability of subjects to know when they were being looked at. However, they may be another reason for this difference, due to the fact that in same-room experiments, the scores are generally higher when the subjects are given feedback (Sheldrake [2000]), which could have encouraged them and helped them to take more interest in the experiment. The overall figure of 59% correct guesses in the same-room experiments included two kinds of procedure, one with and the other without feedback. The percentage of correct guesses in the no-feedback same-room experiments was 54.2% (from the combined results in Tables 3 and 4 in Sheldrake [1999]). Thus in the experiments decribed in this paper, in which the subject were not in the same room and received no feedback, the percentage of correct guesses was very similar to the same-room experiments without feedback. The apparent lowering of the subjects' scores seems to be explicable in terms of the lack of feedback rather than in terms of looking through windows. I conclude that the elimination of possible auditory and olfactory clues made very little difference to the subjects' performance.

There are two other differences between these experiments carried out through windows and experiments in the same room which could have affected the results, perhaps reducing the success rate. First, in the experiments reported in this paper the lookers received no feedback about the subjects' guesses, whereas in previous experiments the lookers did receive such feedback (Sheldrake [1998], [1999], [2000]) and this could have affected the motivation or the concentration of the lookers. Second, in my experiments reported here the subjects and lookers sat in rows, and although lookers were told to look only at their own partner, in several cases I noticed that lookers were glancing at other peoples' partners, which could have weakened the staring effect for a looker's own partner (thus reducing positive scores in looking trials), and confused other lookers' partners in trials in which they were not supposed to be looked at (thus increasing negative scores in not-looking trials). Nevertheless any such effects seem to have been small. back to the top

5. CONFIRMATION FROM EXPERIMENTS USING CLOSED CIRCUIT TELEVISION

The experiments described in this paper confirm that people can indeed tell when they are being looked at from behind in a way that cannot be explained in terms of the normal senses.

This conclusion is confirmed by an independent series of experiments in which subjects were looked at through closed circuit television (CCTV), while their galvanic skin response was recorded continuously, as in lie-detector tests . In these experiments, the lookers and subjects were in different rooms, and the subjects could not have received any clues about when they were being looked at through normal sensory channels. The subjects in these CCTV experiments were not asked to make conscious guesses about when they were being looked at or not; their physiological responses were unconscious. Yet there were significant differences differences in their skin resistance when they were being looked at on a TV monitor in another room (Braud, Shafer and Andrews [1990], [1993a], [1993b]; Schlitz and LaBerge [1994], [1997]; Wiseman and Schlitz [1997]).

So far, practically all the experimental investigations of the effects of being stared at have involved unselected groups of subjects and lookers. The overall positive effects are an average, and of course include data from subjects whose scores were at or below chance levels. There may well be consistent differences between subjects in their sensitivity to being looked at, and some subjects' sensitivity may also improve with practice. In experiments in a German school in which sensitive subjects were selected and then tested repeatedly, the overall percentage of correct guesses was more than 70%, and two of the subjects were right more than 85% of the time (Sheldrake [1998]). Interestingly, the scores of these repeatedly-tested subjects were high not only in the looking trials, but also in the not-looking trials, suggesting that through practice people can learn to tell when they are not being looked at by detecting the difference from when they are being looked at.

There may also be differences between people in their effectiveness as lookers, and there is already evidence from the CCTV experiments of Wiseman and Schlitz [1997] that this is the case. When Schlitz was the looker, there were significant differences in the skin resistance of subjects when she looked at them through the TV monitor, while there was no significant effect when Wiseman (a sceptic) was the looker.

However, even with unselected lookers and subjects the evidence for the reality of the effect of being looked at is already very strong, and the results summarized in this paper indicate that this effect does not depend on normal channels of sensory communication. It could be described as a kind of extrasensory perception or sixth sense, but these terms merely restate the fact that it cannot be explained in terms of the known senses.

I conclude that peoples' ability to know when they are being looked at depends on an influence at present unknown to science. Such influences may play an important part in predator-prey relationships ([1999]), and have far-reaching implications for our understanding of the nature of the mind (Abraham, McKenna and Sheldrake [1992]; Sheldrake [1994]). back to the top

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